

Application No. 10/725,578
Reply to the Office action of 04/11/2005

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An assembly for a gas turbine engine, the assembly comprising a combustor and a vane assembly downstream from the combustor, the vane assembly including at least one airfoil radially extending between an inner and outer platform defining an annular gas path therebetween, wherein a portion of at least the outer platform mates with an adjacent outer combustor wall to form a first sliding joint connection therebetween with an adjacent outer combustor wall such that both relative radial and axial displacement sealing between the outer platform and the outer combustor wall is permitted, said first sliding joint defining a radial gap between facing surfaces of said portion of the outer platform and the outer combustor wall at a first temperature less than engine operating temperature, said facing surfaces being mutually disposed in radial sealing engagement at said engine operating temperature. provided at engine operating temperature while permitting relative axial displacement therebetween.
2. (currently amended) The assembly as defined in claim 1, wherein the inner platform forms a second sliding joint connection with an adjacent inner combustor wall, the second sliding joint connection permitting at least relative axial displacement

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between the inner platform and the inner combustor wall.

3. (original) The assembly as defined in claim 2, wherein the outer platform and the inner platform include upstream ends which respectively mate with the outer and inner combustor walls to form the first and second sliding joint connections.
4. (original) The assembly as defined in claim 3, wherein the upstream ends of the outer platform and the inner platform project upstream from a leading edge of the airfoil.
5. (original) The assembly as defined in claim 4, wherein the outer and inner combustor walls comprise a bifurcated flange at an exit of the combustor, the bifurcated flange having a first flange portion and a second flange portion radially spaced apart from the first flange portion in a direction away from the annular gas path, thereby defining an annular gap between the first flange portion and the second flange portion.
6. (original) The assembly as defined in claim 5, wherein the upstream ends of the outer platform and the inner platform are receivable within the annular gap.
7. (original) The assembly as defined in claim 6, wherein the upstream end of at least the outer platform includes a sliding surface facing radially outward, the sliding surface being adapted for pressed abutment with the second flange portion at

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engine operating temperature such that a seal therebetween is formed.

8. (currently amended) An assembly for a gas turbine engine, the assembly comprising:
- a combustor having a combustor wall circumscribing a gas path therewithin and an exit duct end, the exit duct end having an outer flange portion radially spaced from the combustor wall a first distance in a direction away from the gas path to form an annular slot;
 - a vane assembly disposed downstream of the combustor, the vane assembly including at least one airfoil extending between an inner and an outer platform; and
 - a portion of at least the outer platform extending in the annular slot defined between the combustor wall and the outer flange portion, said portion having a thickness in said direction less than said first distance such that a gap is defined between the portion of the outer platform and one of the combustor wall and the outer flange portion at room temperature, the portion being retained by the combustor wall and the outer flange portion and being disposed in radial sealing engagement with said one of the outer combustor wall and the outer flange portion at engine operating temperature, such that the vane assembly is mounted to the combustor and sealed therewith.
9. (original) The assembly as defined in claim 8, wherein a sliding joint connection is provided

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between the outer platform of the vane assembly and the combustor.

10. (currently amended) The assembly as defined in claim 9, wherein the sliding joint connection extends axially, thereby permitting at least said relative axial displacement between the vane assembly and the combustor.
11. (original) The assembly as defined in claim 10, wherein the sliding joint connection includes the portion of at least the outer platform, the portion of at least the outer platform being an upstream end thereof having a sliding surface, the sliding surface being adapted for pressed abutment with the outer flange portion at engine operating temperature such that a radial seal therebetween is formed.
12. (original) The assembly as defined in claim 8, wherein the outer flange portion circumscribes the combustor exit duct end, and a portion of the inner platform of the vane assembly extends between the combustor wall and the outer flange portion.
13. (original) The assembly as defined in claim 12, wherein a second sliding joint connection is provided between the inner platform and the combustor exit duct end.
14. (original) The assembly as defined in claim 8, wherein the outer flange portion comprises a first thermal expansion coefficient and the outer platform comprises a second thermal expansion

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coefficient, the second thermal expansion coefficient being greater than the first thermal expansion coefficient.

15. (original) The assembly as defined in claim 8, wherein the outer flange portion is in contact with cool air relative to the gas path to which the outer platform is exposed such that a thermal growth differential exists between the outer flange portion and the outer platform, thereby causing the outer platform to expand sufficiently more than the outer flange portion to form a seal therebetween.

16. (original) A method of sealing a joint in an assembly for a gas turbine engine, the assembly comprising a combustor and a vane assembly, the method comprising:

providing a vane assembly mounted to an exit duct of the combustor, the vane assembly having at least one airfoil extending between an inner and an outer platform, at least the outer platform engaging a flange portion of the combustor exit duct;

determining an amount of thermal growth differential exhibited between the flange portion and the at least the outer platform over an engine operating temperature range; and

forming a joint between the flange portion and the at least the outer platform such that a spacing distance therebetween at ambient temperature is less than the determined amount of thermal growth differential over the engine operating temperature range, such that the spacing

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distance closes over the engine operating temperature range to provide a seal between the vane assembly and the combustor.

17. (original) A combustor for a gas turbine engine, the combustor comprising a combustor body having at least an annular exit end adapted to communicate with a vane assembly, the exit end defined by an inner exit lip and an outer exit lip, the inner and outer exit lips each having a pair of spaced-apart members, each pair of said members adapted to slidably engage therebetween one of a pair of spaced-apart platforms of the vane assembly, one of said members being an innermost member relative to the combustor and one of said members being an outermost member relative to the combustor, wherein the spaced-apart members are adapted such that said sliding engagement secures the vane assembly to the combustor independent of other retention means when the combustor is assembled with said vane assembly, and wherein at least one of the outermost and innermost members is flexible to thereby permit, in use, said spaced-apart vane platforms to expand apart from one another.

18. (currently amended) A combustor-to-vane joint assembly for a gas turbine engine, the combustor including an annular exit end for mating with an annular vane ring assembly, the vane ring assembly defined by inner and outer platform rings, the joint comprising:

inner and outer female retaining members
integral with and defining a downstream
end of the annular exit, the female

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retaining members each including ~~spaced-~~
~~apart~~ annular portions spaced-apart by a
first distance; and

inner and outer male insertion members integral
with and defining an upstream end of the
vane assembly platform rings, said male
insertion members having a thickness at
room temperature less than said first
distance;

wherein the vane assembly is mounted to the
combustor solely by insertion of the inner
and outer male insertion members between
the spaced-apart portions of the
respective inner and outer female
retaining members, a radial gap being
defined between said male insertion
members and said respective female
retaining members at room temperature, and
said male insertion members and said
respective female retaining members being
disposed in radial sealing engagement at
engine operating temperature.

19. (original) The combustor-to-vane joint assembly of
claim 18 wherein there is an interference fit
between the male insertion members and at least an
innermost annular portion and an outermost annular
portion of the spaced-apart annular portions of the
female retaining members.

20.. (currently amended) An assembly for a gas turbine
engine, the assembly comprising a combustor having
a wall and an exit end, and an exit vane assembly
mounted to the exit end on an inner side and an

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outer side relative to the combustor, the vane assembly including at least an inner platform and an outer platform, wherein the combustor exit end includes a finger element mounted to the combustor and spaced apart from the combustor wall, and wherein the vane assembly outer platform is held between the finger element and combustor wall to thereby mount the vane assembly to the combustor such that relative radial and axial displacement therebetween is permitted.